REMARKS

The Office Action of March 22, 2006 has been received and its contents carefully considered.

The present Amendment revises independent claim 1 to provide that the second heat radiating film has a rear side that is exposed to air (independent claims 2 and 37 have been revised in a similar manner). This is supported (for example) by Figure 1 of the present application's drawings. The present Amendment also adds two new dependent claims to further protect the invention. The new dependent claims provide that the first heat radiating film is thinner than the semiconductor device, and has a rear side that is exposed to air. The new claims are also supported (for example) by Figure 1.

Page 6 of the Office Action acknowledges that dependent claims 10 and 15 contain allowable subject matter. The present Amendment does not place these claims in independent form, though, since the independent claims are believed to be patentable for the reasons discussed below.

The Office Action rejects the independent claims (along with various dependent claims) for obviousness based on US Patent 6,791,195 to Urushima and US patent 6,194,778 to Ohsawa et al. This latter reference will hereafter be called simply "Ohsawa" for the sake of convenient discussion. In support of the rejection, the Office Action draws attention to features shown in Urushima's Figure 6 (with is reproduced on the cover sheet of the reference) and Ohsawa's Figure 7 (likewise reproduced on Ohsawa's cover sheet).

Claim 1 provides generally that a semiconductor device is mounted at a first area of a substrate. The first area of the substrate is surrounded by a second area, on which a first heat radiating film is disposed. A first surface of the semiconductor device is opposite the surface

of the substrate, and a second heat radiating film is disposed on a second surface of the semiconductor device. The second heat radiating film does not extend beyond the periphery of the second surface, and is also spaced apart from the first heat radiating film. The second heat radiating film has a peripheral edge that is exposed to air, along with a rear side that is also exposed to air.

Pages 2 and 3 of the Office Action assert that Urushima discloses that "a first heat radiating film (left and right side portions of element 30) is disposed on the second area of the substrate, and a second heat radiating film (central portion of element 30) is disposed on the second surface of the semiconductor device but does not extend beyond the periphery of the second surface ...". However, Urushima's element 30 is just paste that transfers heat to a heat spreader 32, which dissipates the transferred heat directly into the air. There is no conception in the reference of a "second heat radiating film" in accordance with claim 1, whose rear side is exposed to the air and is therefore able to dissipate heat directly in to the air.

It is also respectfully submitted that the regions of paste 30 that Urushima shows on the left and right sides are not disposed on the second area of Urushima's interposer 14. Instead, these regions of paste 30 are disposed well above Urushima's interposer 14 and are spaced apart from it by a pair of a relatively thick intervening layers.

On page 3, the Office Action comments that Urushima does not disclose a second heat radiating film having a peripheral edge exposed to air, but the Ohsawa reference has such a second heat radiating film (reference number 18). However, the peripheral edge of Urushima's paste 30 appears to be exposed to air. The Office Action takes a position that it would have been obvious to modify Urushima by including a second heat radiating film having a peripheral edge that is exposed to air, in order to obtain more effective heat

dissipation, but the proposed modification would merely provide a feature that is already present in Urushima. Accordingly, it is respectfully submitted that the Office Action has not presented a viable theory about why an ordinarily skilled person would have been motivated to modify Urushima in accordance with Ohsawa.

Independent claim 2 provides that a semiconductor device is mounted on the substrate, with a first surface of the semiconductor device being opposite to the substrate. Claim 2 also provides that a heat radiating film is disposed on a second surface of the semiconductor device without extending beyond the periphery of the second surface. The peripheral edge and rear side of this heat radiating film are exposed to air. In contrast, Urushima's paste 30 is sandwiched between a chip and Urushima's heat spreader 32.

Turning next to independent claim 37, it is respectfully submitted that this claim is patentable over the references for reasons along the lines discussed above with respect to the claim 1.

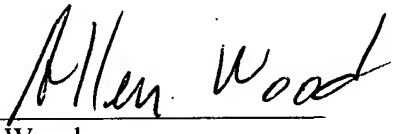
The remaining claims depend from the independent claims discussed above and recite additional limitations to further define the invention, so they are patentable along with their independent claims. Nevertheless, the two new dependent claims will now be briefly addressed.

The two new dependent claims provide generally that the first heat radiating film of independent claims 1 and 37 is thinner than the semiconductor device, and has a rear side that is exposed to air. Even if the lowermost (un-numbered) layer below the paste 30 on Urushima's left and right sides were characterized as the first heat radiating film, Urushima still would not meet the limitations of the new dependent claims.

It is noted that this application has now been amended to include two additional dependent claims in excess of 20. Accordingly, a remittance that includes an additional fee $100 is being submitted concurrently.

For the foregoing reasons, it is respectfully submitted that this application is now in condition for allowance. Reconsideration of the application is therefore respectfully requested.

Respectfully submitted,



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